Launch and Test Range System Program Status

Satellite and Launch Control Systems Program Office
Space and Missile Systems Center
Los Angeles AFB

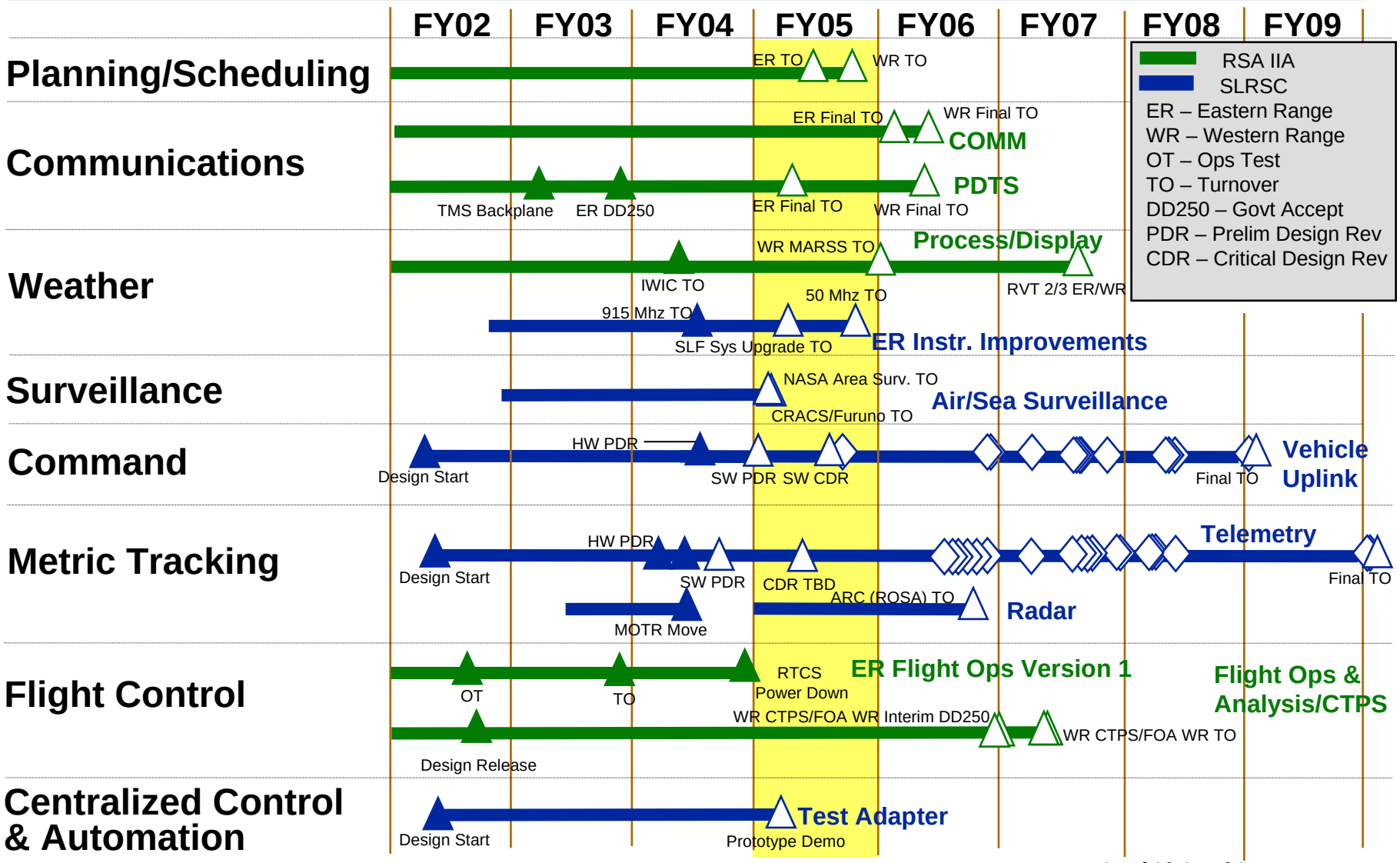
Jan 05

Overview

- LTRS Summary Schedule
- Recent Modernization Successes
- Legacy Shutdown Strategy
- Special Interest Items
- LTRS Modernization Challenges
- Summary

LTRS High Level Summary Schedule

Significant modernized capability added to Ranges in the next 12 months



Scale is Govt FY – 10/1 thru 9/30

As of 16 Aug 04

Modernization Successes

Product Turnovers to Range

- **Communications:**
  - **Eastern Range Communications**
    - **(Core, Video, Voice) - Jun-Dec 03/Mar 04**
- **Weather:**
  - **ER 915 MHz Doppler Radar Weather Profiler – Apr 04**
  - **WR Integrated Weather / Infrastructure / Communications (IWIC) – Feb 04**
- **Flight Control/Telemetry:**
  - **ER Integrated SATCOM / Centralized Telemetry Processing System (CTPS) / Flight Ops Version 1 (FOV1)**
    - **Turnover – 18 Sep 03**
    - **Certification Flights – 19 May 04, 23 Jun 04, 3 Aug 04**
    - **Legacy Shutdown – 13 Aug 04**

Communications

New Waveguide at Wabasso Site

WR Integrated Weather Product

Substantial stakeholder involvement in product development and acceptance

Our Range Customers

- **30th and 45th Space Wing – Operators**

- **Wing Launch Customers**
  - **Launch Programs (EELV, Atlas, Titan, Delta, et al.)**
  - **Ballistic Missile Test (MM III, Peacekeeper)**
  - **NASA**
  - **MDA**
  - **Others**

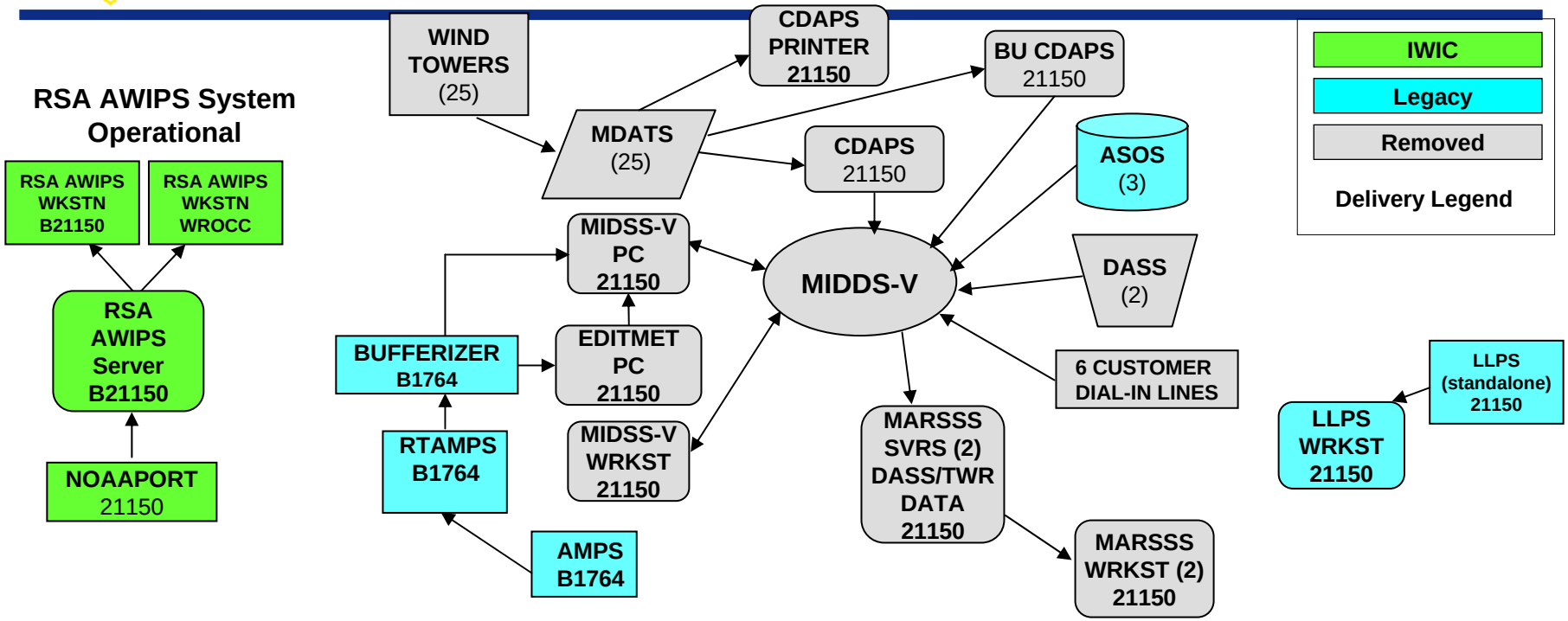
Legacy Shutdown Strategy

- Legacy shutdown actions are negotiated and formally coordinated with all stakeholders and documented in legacy shutdown plan
- Each plan reflects complexities of specific system
  - Range modernization products are incrementally delivered with incremental shutdown of legacy systems
  - Projected start of legacy shutdown established
  - Legacy shutdown completion is coordinated in planning process
- Plans are event driven
- First Plan (Weather) signed 16 Jul 04
- Flight Operations Version 1 and Planning & Scheduling signed 24 Nov 04

Legacy System Shutdown

Product	Plan Released by SLRSC for Coordination	Plan Signed by O-6's	Dates of System Legacy Shutdown and Disposal	Status
WR Legacy WX Subsystem Shutdown (Remove MIDDS-V, CDAPS, MARSSS, DASS, Legacy AWIPS)	28 May 04	16 Jul 04	Apr 06 – Oct 06	Signed off/Complete
ER FOV-1 (Remove RTCS)	9 Dec 02 / 20 Aug 04	24 Nov 04	13 Aug 04 – Sep 05	Signed off/Complete
ER P&S Legacy Shutdown (Remove ESTAR)	27 Aug 04	24 Nov 04	Jul 05 – Sep 05	Signed off/Complete
ER COMM Phase I Legacy Shutdown Video, Voice, Core, Timing (Remove legacy NETSEG)	15 Nov 04	Jan 05	1 Jun 04 – Sep 05	Coordination
Furuno Rdr-CRACS Legacy Shutdown (Removal of 1.8 Radar)	22 Oct 04	Jan 05	Feb 05 – Jul 05	Coordination
WR COMM Legacy Shutdown I (Video, Data and Voice)	15 Nov 04	Jan 05	Nov 05 – Oct 06	Coordination
ER Wx (MIDDS, RTWAPS, WINDS, NLDN,ERDAS,LPLWS)	10 Dec 04	Feb 05	Jul 06 – Jan 07	Coordination
ER COMM Phase II (Sites requiring connectivity to CORE)	Jan 04	Feb 05	N/A (adding additional capability)	SLRSC Developing
ER PDTS (Misc Telem & Comm equip)	Feb 05	Apr 05	Aug 05 – Feb 06	SLRSC working with user

Legacy Shutdown Example – Weather WR



Legacy Capabilities

- Range Safety Constraints
- Launch Agency Constraints

Remaining Legacy Systems

- AMPS/RTAMPS
- AMPS/RTAMPS

RSAIIA Capabilities

- Forecasting/Local Data
- National Satellite Data
- Launch Agency Constraints
- Wx Briefing
- Toxic/Blast Modeling
- Lightning Display

RSAIIA Systems

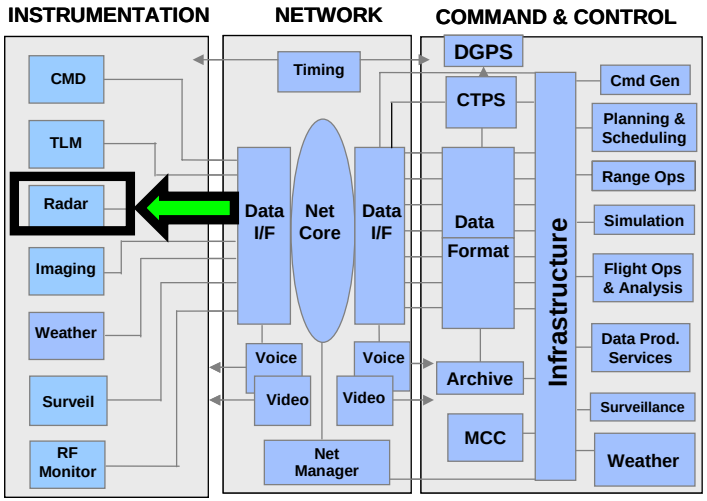
- AWIPS, Instruments
- NOAAPORT
- Local Instruments
- AWIPS, NOAAPORT, Instruments
- MARSS, AMPS, SODARS, Towers
- LLPS

Shutdown of legacy systems, while Increasing Wx functionality and Launch availability

Special Interest Items

- **Antigua Radar at the CIF (ARC)**
- **WROCC Activation**

ARC Project
(Antigua Radar at the Consolidated Instrumentation Facility)



SYSTEM DESCRIPTION

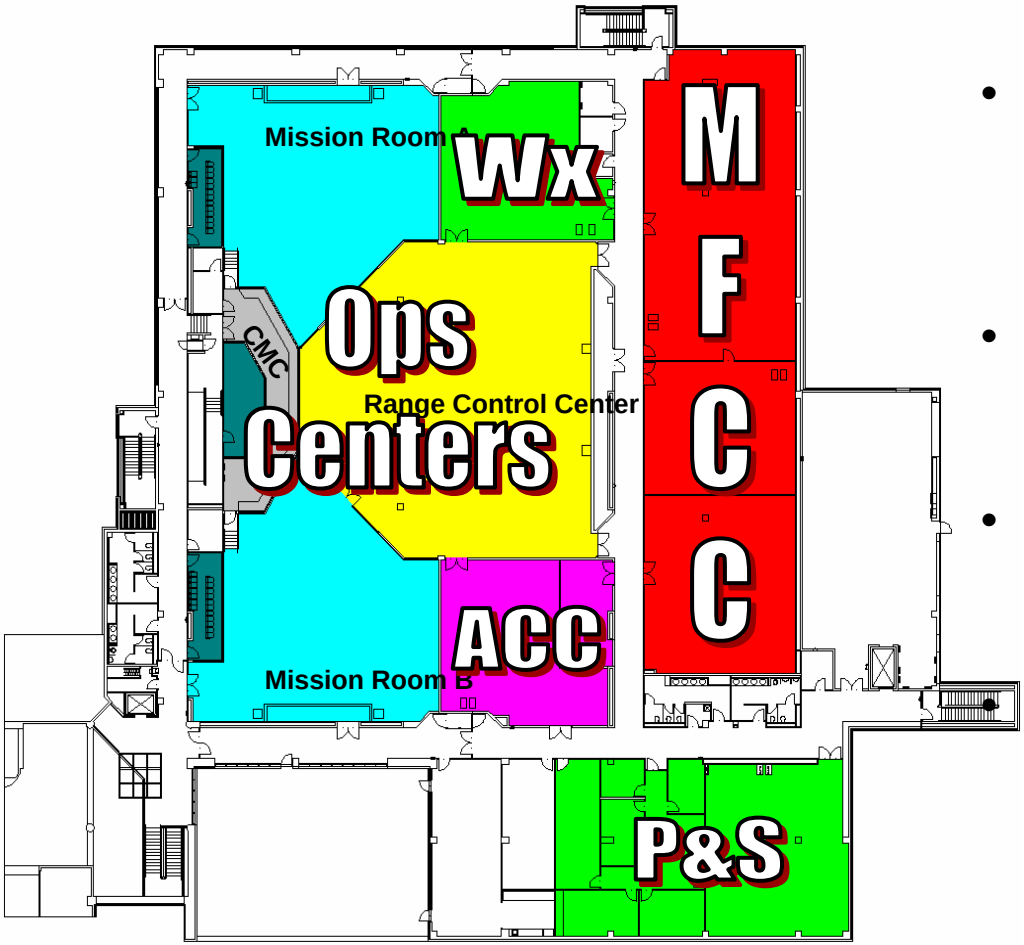
Description: Provides vehicle skin track and transponded signals for position and signature data. Also supports debris and impact position analysis.

Significance: Radars support Range Safety and Range Users.

STATUS

- Background:
  - Antigua radar 91.14 is the #1 maintenance problem.
    - ➢ Performance problems reducing Ops availability
    - ➢ Range Safety critical, only radar at mid-course
- Replace 91.14 - Provides a new ROSA-based radar
  - ➢ ROSA (Radar Open System Architecture), developed by MIT; is state-of-the-art technology
  - ➢ Two-year project, kick-off Aug 04
- ROSA - architecture for all future radar upgrades

WROCC Activation Overview



- Build new Ops Centers: new consoles, comm panels, video monitor/selectors, Status & Alert System
- Relocate Area Control Center (ACC): modern, sustainable equipment
- Incorporate RSA IIA systems: Weather, Planning & Scheduling, PDTS, FOA/CTPS

Incorporate SLRSC system: WROCC Central Command System (WCCS)

Modernization Challenges

- **Modernizing while supporting current ops**
- **Emerging Requirements**
  - **New missions arriving with new requirements**
  - **Working to accommodate and mitigate whenever possible**
- **Accelerating WROCC activation (increased Ops Capability)**
  - **Amount of Split Ops reduced although still present**
  - **Earlier Ops Activation will stimulate new opportunities for the Western Range OCC**

Summary

- **Supporting current launch schedule while transitioning modernized capabilities in next 12 months**
- **WROCC activation accelerated**
- **Proactive legacy shutdown strategy**
- **Substantial customer involvement in product development, turnover and transition**

Significant cultural change in stakeholder involvement

Conclusion / Final Remarks